HUMERAL CUT GUIDE

FIELD

The present disclosure relates to humeral cut guide members.

BACKGROUND

This section provides background information related to the present disclosure which is not necessarily prior art.

During shoulder arthroplasty, the humeral bone may require resurfacing to resectioning for receipt of a shoulder implant. Prior to surgery, it is common for the surgeon to take various images via X-ray, CT, ultrasound, MRI, or PET of the surgical area including the humeral bone. Based on these images, the surgeon can determine the best course of action for resurfacing or resectioning the humeral bone, as well as determine whether the primary procedure for shoulder repair is an anatomical or reverse arthroplasty. During the surgery, however, it is not uncommon for the surgeon to determine that the preselected courses of action are not suitable for the patient. If the course of action changes during surgery, new instruments may be required to properly complete the resurfacing or resectioning of the humeral bone before completing the arthroplasty procedure.

SUMMARY

This section provides a general summary of the disclosure, and is not a comprehensive disclosure of its full scope or all of its features.

The present disclosure provides a humeral cut guide system for resectioning or resurfacing a humeral head. The cut guide system includes a primary cut guide member configured to be removably coupled to the humeral head. The primary cut guide member includes a patient-specific bone-engaging surface, a primary elongate slot that defines a primary cutting plane, and a pair of cylindrical apertures configured to receive a pair of guide pins. The cut guide system also includes a secondary cut guide member that includes a pair of through-holes configured to mate with the pair of guide pins, wherein the secondary cut guide member includes a secondary elongate slot that defines a secondary cutting plane.

The present disclosure also provides a method of resectioning or resurfacing a humeral head. The method includes affixing a primary cut guide member to a humeral head. The primary cut guide member includes a patient-specific bone-engaging surface, a primary elongate slot that defines a primary cutting plane, and a pair of cylindrical apertures. The method also includes determining whether the primary cutting plane is sufficient for the resectioning or the resurfacing of the humeral head. If the primary cutting plane is sufficient, the resectioning or the resurfacing of the humeral head is conducted. If the primary cutting plane is not sufficient for the resectioning or the resurfacing of the humeral head, a pair of guide pins are coupled to the humeral head through the cylindrical apertures, the primary cut guide slot is removed, and a secondary cut guide member including a secondary elongate slot that defines a secondary cutting plane is attached to the pins.

Further areas of applicability will become apparent from the description provided herein. The description and specific examples in this summary are intended for purposes of illustration only and are not intended to limit the scope of the present disclosure.

DRAWINGS

The drawings described herein are for illustrative purposes only of selected embodiments and not all possible implementations, and are not intended to limit the scope of the present disclosure.

FIG. **1** is an exploded view of a prior art implant for reverse shoulder arthroplasty;

FIG. **2** is an environmental view of the prior art implant of FIG. **1**;

FIG. **3** is a perspective environmental view of a humeral cut guide system according to a principle of the present disclosure;

FIG. **4** is a perspective environmental view of a humeral cut guide member according to a principle of the present disclosure;

FIG. **5** is a perspective view of an exterior of the humeral cut guide illustrated in FIG. **3**;

FIG. **6** is another perspective view of an interior of the humeral cut guide illustrated in FIG. **3**;

FIG. **7** is a perspective view of a secondary cut guide according to a principle of the present disclosure;

FIG. **8** is a perspective environmental view of the pins illustrated in FIG. **4**, with the humeral cut guide in FIG. **4** removed;

FIG. **9** is a perspective environmental view of the secondary cut guide illustrated in FIG. **7** mounted to the pins illustrated in FIG. **8**;

FIG. **10** is a perspective environmental view of a humeral cut guide system according to a principle of the present disclosure;

FIG. **11** is another perspective environmental view of the humeral cut guide system illustrated in FIG. **10**;

FIG. **12** is a perspective environmental view of a humeral mating member that forms part of the humeral cut guide system illustrated in FIG. **10**;

FIG. **13** is a perspective view of a humeral cut guide member that forms part of the humeral cut guide system illustrated in FIG. **10**;

FIG. **14** is a perspective view of the humeral mating member illustrated in FIG. **12**;

FIG. **15** is a perspective environmental view of another humeral cut guide system according to a principle of the present disclosure;

FIG. **16** is another perspective environmental view of the humeral cut guide system illustrated in FIG. **15**;

FIG. **17** is a perspective view of a humeral cut guide member illustrated in FIG. **15**; and

FIG. **18** is another perspective view of the humeral cut guide member illustrated in FIG. **15**.

Corresponding reference numerals indicate corresponding parts throughout the several views of the drawings.

DETAILED DESCRIPTION

Example embodiments will now be described more fully with reference to the accompanying drawings.

The present disclosure generally provide patient-specific surgical instruments that include, for example, alignment guides, drill guides, and other tools for use in shoulder joint replacement, shoulder resurfacing procedures and other procedures related to the shoulder joint or the various bones of the shoulder joint, including the humeral head. The present disclosure can be applied to anatomic shoulder replacement and reverse shoulder replacement or resurfacing. The patient-specific instruments can be used either with conventional implant components or with patient-specific implant compo-